

Multiple Sclerosis

Reports of cannabinoids' ability to reduce MS-related symptoms such as pain, spasticity, depression, fatigue, and incontinence are plentiful in the scientific literature.¹⁻¹⁴ Cannabis' efficacy is further supported in randomized placebo-controlled trials. Investigators at the University of California at San Diego report that inhaled cannabis significantly reduces objective measures of pain intensity compared to placebo in patients with MS. They concluded that "smoked cannabis was superior to placebo in reducing spasticity and pain in patients with multiple sclerosis and provided some benefit beyond currently prescribed treatment."¹⁵ These results were later published in the *Journal of the Canadian Medical Association*. Investigators concluded, "Smoked cannabis was superior to placebo in symptom and pain reduction in patients with treatment-resistant spasticity."¹⁶ Not surprisingly, patients with multiple sclerosis typically report engaging in cannabis therapy,¹⁷⁻¹⁹ with one survey indicating that nearly one in two MS patients use it therapeutically.²⁰

Preclinical models suggest that cannabinoids may also inhibit MS progression in addition to providing symptom management. Writing in the journal *Brain*, investigators at the University College of London's Institute of Neurology reported that administration of the synthetic cannabinoid agonist [WIN 55,212-2](#) provided "significant neuroprotection" in an animal model of multiple sclerosis. "The results of this study are important because they suggest that in addition to symptom management, ... cannabis may also slow the neurodegenerative processes that ultimately lead to chronic disability in multiple sclerosis and probably other disease," researchers concluded.²¹ Spanish researchers have reported similar findings, documenting that "the treatment of EAE mice with the cannabinoid agonist WIN55,512-2 reduced their neurological disability and the progression of the disease."²² Purified CBD has also been shown to possess an anti-apoptotic power against the neurodegenerative processes underlying MS development in animals.²³ Clinical data reports that the administration of [oral THC](#) can boost immune function in patients with multiple sclerosis, suggesting "pro-inflammatory disease-modifying potential of cannabinoids [for] MS."²⁴ Results from a 2016 trial of children with treatment-resistant MS also demonstrated that that dronabinol reduced spasticity in the majority of patients.²⁵

A small number of controlled trials suggest that cannabis therapy may slow down the clinical progression of MS in humans.²⁶ Observational data from an extended open-label study of 167 multiple sclerosis patients found that use of whole plant cannabinoid extracts relieves symptoms of pain, spasticity and bladder incontinence for an extended period of treatment (mean duration of study participants was 434 days) without requiring subjects to increase their dose.²⁷ Results from another two-year open label extension trial report that the administration of cannabis extracts is associated with long-term reductions in neuropathic pain in select MS patients. On average, patients in that study required fewer daily doses of the drug and reported lower median pain scores the longer they took it.²⁸ These results would be unlikely in patients suffering from a progressive disease like MS unless the cannabinoid therapy was halting its progression, investigators suggested.

In recent years, health regulators in numerous countries – including Canada, Denmark, Germany, New Zealand, Spain and the United Kingdom -- have approved the prescription use of plant

cannabis extracts to treat symptoms of multiple sclerosis. Longitudinal data finds that daily use of these extracts are typically effective and well-tolerated in patients, including those with treatment-resistant MS.²⁹ In some instances, patients who have failed to respond to these extracts have ultimately exhibited therapeutic benefits from whole-plant cannabis.³⁰

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